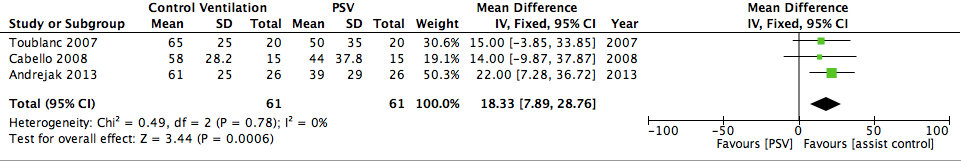
**Non Pharmacologic – Assist Control**

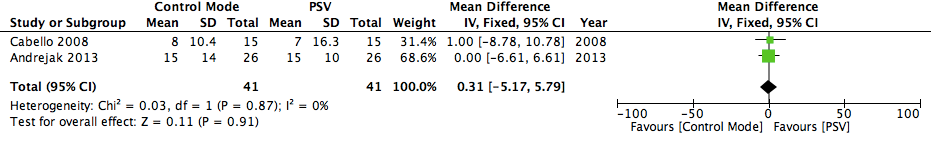
**Sleep Efficiency**

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**Toublanc [1], Cabello [2], Andrejak [3]**

**Non Pharmacologic – Assist Control**

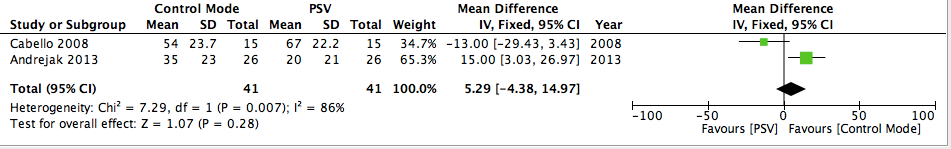
**Stage 1 Sleep**

****

**Cabello [2], Andrejak [3]**

**Non Pharmacologic – Assist Control**

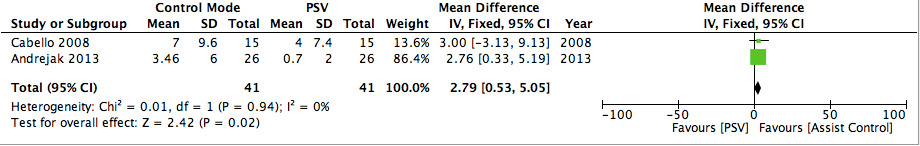
**Stage 2 Sleep**

****

**Cabello [2], Andrejak [3]**

**Non Pharmacologic – Assist Control**

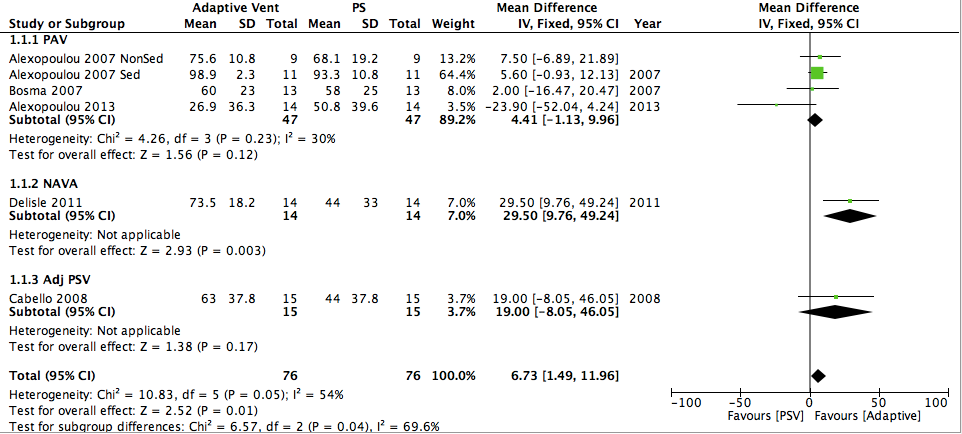
**REM Sleep**

****

**Cabello [2], Andrejak [3]**

**Non Pharmacologic – Adaptive Ventilation**

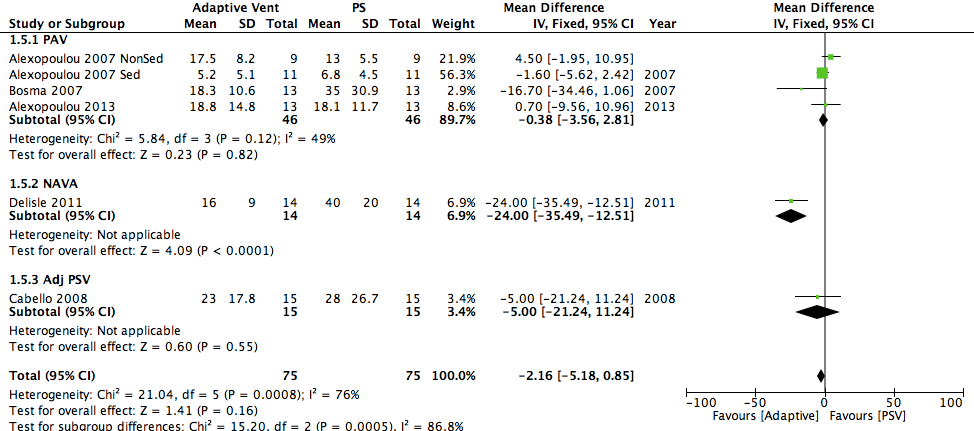
**Sleep Efficiency**

****

**Alexopoulou 2007 [4], Bosma [5], Alexopoulou 2013 [6], Delisle [7], Cabello [2]**

**Non Pharmacologic – Adaptive Ventilation**

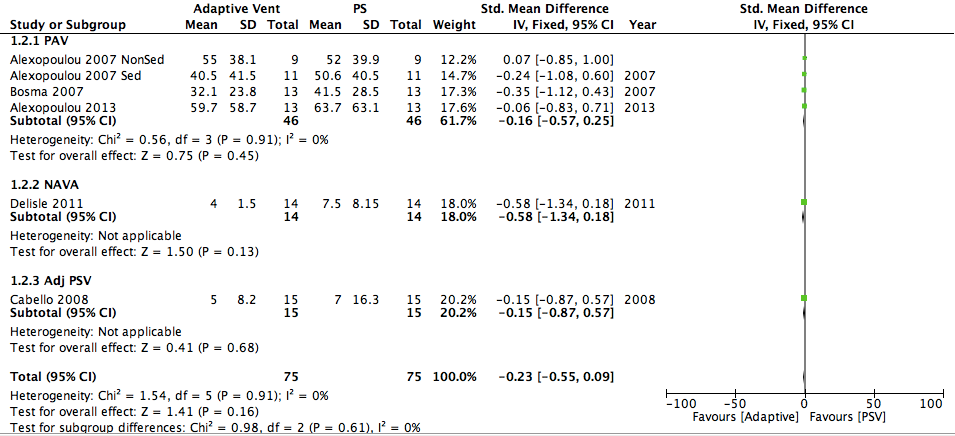
**Sleep Fragmentation**

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**Alexopoulou 2007 [4], Bosma [5], Alexopoulou 2013 [6], Delisle [7], Cabello [2]**

**Non Pharmacologic – Adaptive Ventilation**

**Stage 1 Sleep**

****

**Alexopoulou 2007 [4], Bosma [5], Alexopoulou 2013 [6], Delisle [7], Cabello [2]**

**Non Pharmacologic– Adaptive Ventilation**

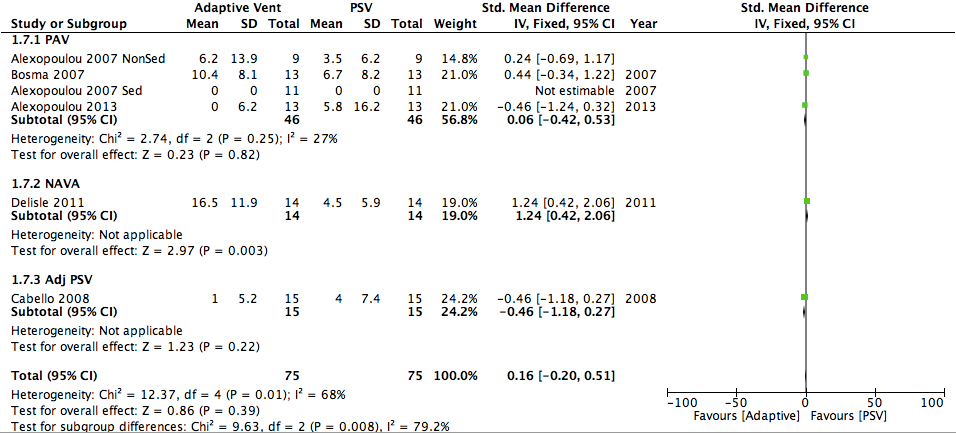
**Stage 2 Sleep**

****

**Alexopoulou 2007 [4], Bosma [5], Alexopoulou 2013 [6], Delisle [7], Cabello [2]**

**Non Pharmacologic– Adaptive Ventilation**

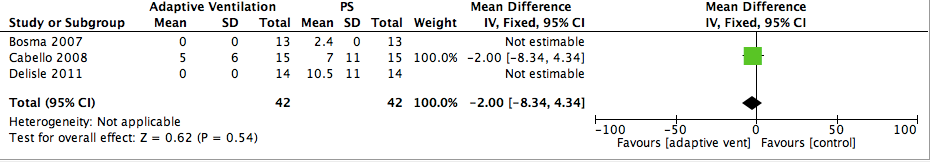
**REM Sleep**

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**Alexopoulou 2007 [4], Bosma [5], Alexopoulou 2013 [6], Delisle [7], Cabello [2]**

**Non Pharmacologic – Adaptive Ventilation**

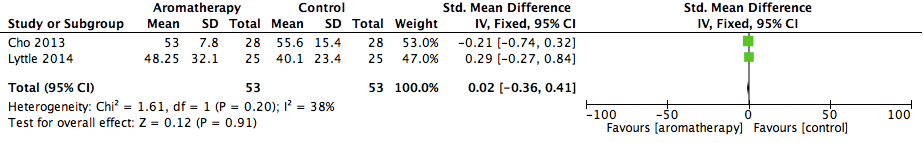
**Apneas/hour**

****

**Bosma [5], Cabello [2], Delisle [7]**

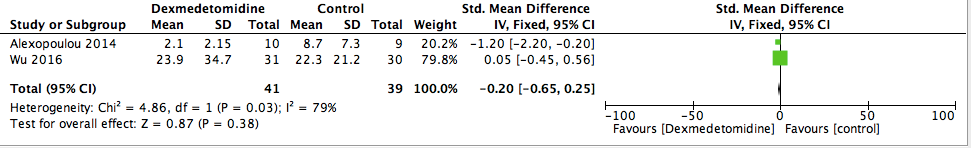
**Non Pharmacologic – Aromatherapy**

**Self-Reported Sleep**

**Cho [8], Little 2012 [9]**

**Pharmacologic – Dexmedetomdine**

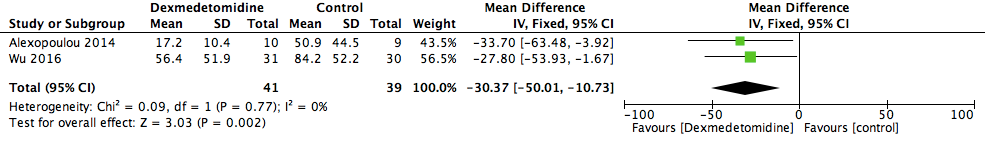
**Sleep Fragmentation**

****

**Alexopoulou [10], Wu [11]**

**Pharmacological Dexmedetomidine**

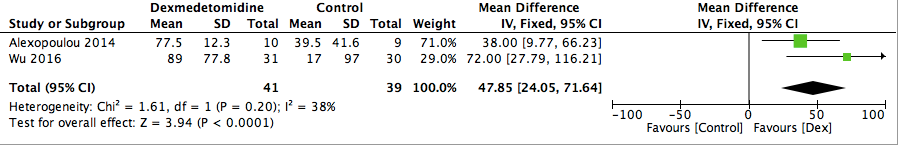
**Stage 1 Sleep**

****

**Alexopoulou [10], Wu [11]**

**Pharmacological Dexmedetomidine**

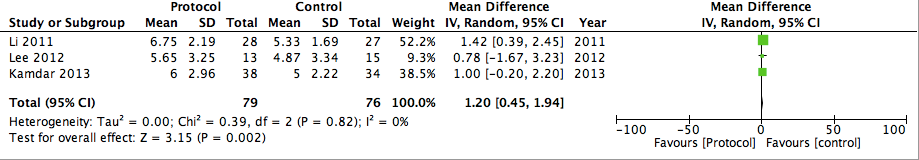
**Stage 2 Sleep**

****

**Alexopoulou [10], Wu [11]**

**Multicomponent Sleep Protocol**

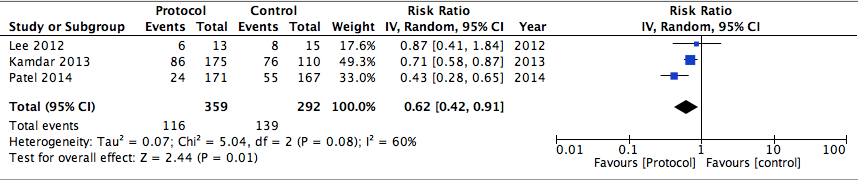
**Daytime Sleepiness**

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**Li [12], Lee [13], Kamdar [14]**

**Multicomponent Sleep Protocol**

**Delirium**

****

**Lee [13], Kamdar [14], Patel [15]**

**References**

1. Toublanc B, Rose D, Glérant J-C, Francois G, Mayeux I, Rodenstein D, Jounieaux V: **Assist-control ventilation vs. low levels of pressure support ventilation on sleep quality in intubated ICU patients**. *Intensive Care Med* 2007, **33**(7):1148-1154.

2. Cabello B, Thille AW, Drouot X, Galia F, Mancebo J, d'Ortho M-P, Brochard L: **Sleep quality in mechanically ventilated patients: comparison of three ventilatory modes**. *Crit Care Med* 2008, **36**(6):1749-1755.

3. Andréjak C, Monconduit J, Rose D, Toublanc B, Mayeux I, Rodenstein D, Jounieaux V: **Does using pressure-controlled ventilation to rest respiratory muscles improve sleep in ICU patients?** *Respir Med* 2013, **107**(4):534-541.

4. Alexopoulou C, Kondili E, Vakouti E, Klimathianaki M, Prinianakis G, Georgopoulos D: **Sleep during proportional-assist ventilation with load-adjustable gain factors in critically ill patients**. *Intensive Care Med* 2007, **33**(7):1139-1147.

5. Bosma K, Ferreyra G, Ambrogio C, Pasero D, Mirabella L, Braghiroli A, Appendini L, Mascia L, Ranieri VM: **Patient-ventilator interaction and sleep in mechanically ventilated patients: pressure support versus proportional assist ventilation**. *Crit Care Med* 2007, **35**(4):1048-1054.

6. Alexopoulou C, Kondili E, Plataki M, Georgopoulos D: **Patient-ventilator synchrony and sleep quality with proportional assist and pressure support ventilation**. *Intensive Care Med* 2013, **39**(6):1040-1047.

7. Delisle S, Ouellet P, Bellemare P, Tétrault J-P, Arsenault P: **Sleep quality in mechanically ventilated patients: comparison between NAVA and PSV modes**. *Ann Intensive Care* 2011, **1**(1):42.

8. Cho M-Y, Min ES, Hur M-H, Lee MS: **Effects of aromatherapy on the anxiety, vital signs, and sleep quality of percutaneous coronary intervention patients in intensive care units**. *Evid Based Complement Alternat Med* 2013, **2013**:381381.

9. Little A, Ethier C, Ayas N, Thanachayanont T, Jiang D, Mehta S: **A patient survey of sleep quality in the Intensive Care Unit**. *Minerva Anestesiol* 2012, **78**(4):406-414.

10. Alexopoulou C, Kondili E, Diamantaki E, Psarologakis C, Kokkini S, Bolaki M, Georgopoulos D: **Effects of dexmedetomidine on sleep quality in critically ill patients: a pilot study**. *Anesthesiology* 2014, **121**(4):801-807.

11. Wu X-H, Cui F, Zhang C, Meng Z-T, Wang D-X, Ma J, Wang G-F, Zhu S-N, Ma D: **Low-dose Dexmedetomidine Improves Sleep Quality Pattern in Elderly Patients after Noncardiac Surgery in the Intensive Care Unit: A Pilot Randomized Controlled Trial**. *Anesthesiology* 2016, **125**(5):979-991.

12. Li SY, Wang TJ, Vivienne Wu SF, Liang SY, Tung HH: **Efficacy of controlling night-time noise and activities to improve patients' sleep quality in a surgical intensive care unit**. *Journal of clinical nursing* 2011, **20**(3-4):396-407.

13. Nam LE, Lim CJ, Ri KM, Ju LE, Hui LY, Ju CE, Ran LH: **The Effects of Sleep Improvement Intervention on the Sleep Quality and Incidence of Delirium in the Intensive Care Unit Patients**. *Journal of Korean Critical Care Nursing* 2012, **5**(1).

14. Kamdar BB, King LM, Collop NA, Sakamuri S, Colantuoni E, Neufeld KJ, Bienvenu OJ, Rowden AM, Touradji P, Brower RG *et al*: **The effect of a quality improvement intervention on perceived sleep quality and cognition in a medical ICU**. *Crit Care Med* 2013, **41**(3):800-809.

15. Patel J, Baldwin J, Bunting P, Laha S: **The effect of a multicomponent multidisciplinary bundle of interventions on sleep and delirium in medical and surgical intensive care patients**. *Anaesthesia* 2014, **69**(6):540-549.